

# ASSESSMENT OF GROUNDWATER QUALITY AT MEHERCHANDI AREA OF RAJSHAHI CITY, BANGLADESH

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## ABSTRACT

The physicochemical characteristics of groundwater samples collected from Meherchandi area of Rajshahi City, Bangladesh have been studied for the assessment of its quality and suitability especially for drinking purposes. Twenty water samples were collected from randomly selected domestic water supply tube wells throughout the area. Several parameters including temperature, pH, electrical conductivity (EC), total hardness (TH), total dissolved salts (TDS), quantity of dissolved anions viz.  $\text{HCO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ , and cations viz.  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Mn}^{2+}$  and  $\text{As}^{3+}$  are determined following standard procedures.

It is observed that the ground waters of the area are transparent, colourless, odourless and tasteless at the time of extraction. Descriptive statistics depending upon pH demonstrates that the waters are in general, alkaline in nature; considering TDS, all groundwater samples are rated as 'fresh water' and as regards to hardness, water samples of this area are categorized as 'very hard' in quality. According to drinking water standard, the concentrations of Ca, Mg, Fe, Cu, Zn, Cl and  $\text{SO}_4$  in the groundwater samples are within the safe limit causing no ionic toxicity; however the abundance of As, Fe and Mn in few samples may pose potential threats to human health and environment.

**KEYWORDS:** Groundwater, Physicochemical Characteristics, Trace Metals, Toxicological Effects, Human Health.